

蝶と蛾 *Tyô to Ga* 43 (4): 239-244, March 1993

Descriptions of the larva and pupa of a clearwing moth *Synanthedon multitarsus* Špatenka & Arita (Sesiidae)

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Abstract The mature larva and pupa of a clearwing moth *Synanthedon multitarsus* Špatenka & Arita are described and illustrated. *Salix gracilistyla* is added as a host-plant for the first time and some bionomic notes are presented.

Key words Lepidoptera, Sesiidae, *Synanthedon multitarsus*, immature stages, host-plant.

One of us, S. Niimi, discovered the small yellow barred clearwing moth, *Synanthedon multitarsus* Špatenka & Arita, from *Salix gracilistyla* Miquel at a river beach of the Yahagigawa river, Asuke-cho, Aichi-ken, central Honshu (Figs. 2 & 3). Another H. Nakano, also had a chance to breed this clearwing moth from the already known host, *Alnus serrulatoides* Callier, at the same place (Figs. 1, 4 & 5). On the basis of these material, descriptions of the mature larva and pupa and bionomic notes of *S. multitarsus* are given below.

Synanthedon multitarsus Špatenka and Arita (Figs. 1-13)

Mature larva (Figs. 3-6, 9-10). Length 14.3-17.0 mm. Head light brown; mouth parts dark brown. Body creamy white; prothoracic shield light yellowish brown, with a long oblique brown streak from postero-dorsal to middle (Fig. 10e); thoracic legs light yellowish brown, claws brown; anal shield light yellowish brown (Fig. 9). Head (Fig. 10a) broader than long; coronal suture short. Ocelli (Fig. 10b) six; ocelli V and VI separated from ocelli I-IV. Labrum as illustrated (Fig. 10c). Mandible with three large and one small teeth (Fig. 10d). Spiracle of 8th abdominal segment large and located posterodorsally (Fig. 9). Proleg (Fig. 10h) with about 30 crochets. Anal proleg (Fig. 10i) with about 10 crochets.

Chaetotaxy. Head (Figs. 10a and b). P1 very long, P2 microscopic. A1 and A3 very long; A2 extremely short, adjacent to A1. O1 very short and anteroventral to ocellus II; O2 very long and posteroventral to ocellus I. Prothorax (Fig. 10e) with an L group trisetose and arranged in triangle on large pinaculum. Abdomen (Figs. 10f and g) with SD1 very long, SD2 microscopic on 1st-7th segments. L group of 8th segment very adjacent to large spiracle.

Material examined. 10 exs.

Specimens reared from larvae on *Salix gracilistyla*: Japan, Honshu—2 exs., Aichi-ken, Higashikamo-gun, Asuke-cho, Wachihara, 17. III. 1991, S. Niimi & H. Nakano leg.; 1 ex., same locality, 19. IV. 1991, Y. Arita & S. Niimi leg.; 2 exs., same locality, 17. V. 1991, S. Niimi leg.; 2 exs., same locality, 22 V. 1991, S. Niimi leg.

Specimens reared from larvae on *Alnus serrulatoides*: Japan, Honshu—2 exs., Aichi-ken, Higashikamo-gun, Asuke-cho, Wachihara, 17. III. 1991, H. Nakano & S. Niimi leg.; 1 ex., same locality, 17. V. 1991, H. Nakano leg.

Pupa (Figs. 7-8, 11-13). Length 8.4-11.0 mm, width 2.8-3.6 mm. Brown, rather slender.



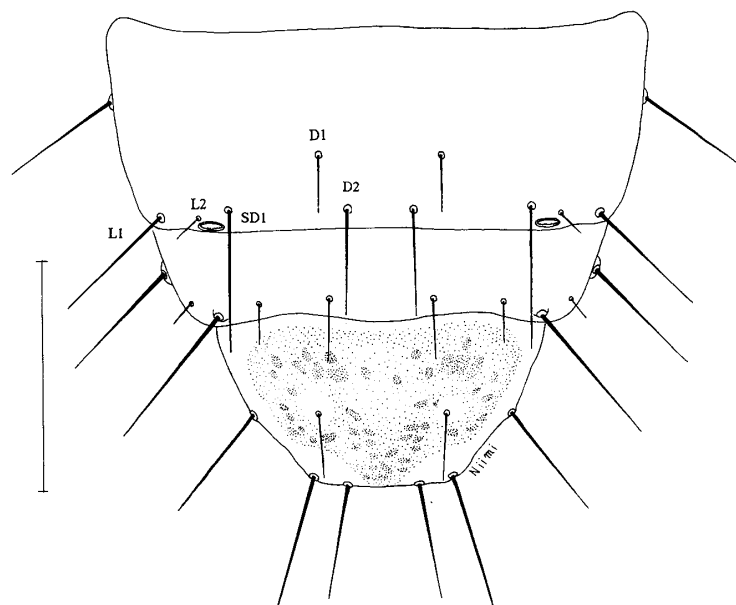


Fig. 9. *Synanthedon multitarus* Špatenka & Arita ex *Salix gracilistyla*, dorsal view of eighth to tenth abdominal segments. Scale line=1.0 mm.

Frontal process (Figs. 11a and b) well developed, sharply pointed frontally in lateral view and concave at middle of posterior margin in dorsal view. Proboscis very long, slightly beyond wing tips. Mid legs and wing tips extending to posterior margin of 5th abdominal segment. Hind legs nearly reaching to posterior margin of 6th abdominal segment. Alar furrows on mesothoracic dorsum strongly enlarged and well ridged. Dorsal spines of abdominal segments consisting of one row on 2nd, 8th and 9th segments in male and 7th in female and two rows on 3rd-7th segments in male and 3rd-6th in female. Tenth abdominal segments (Figs. 13a-c) with five pairs of spines; one pair of large spines on dorsal side, two pairs on lateral sides and two pairs, of which the inner pair is very small, on ventral side.

Material examined. 9 exs.

Reared from larvae on *Salix gracilistyla*: Japan, Honshu—2 exs., Aichi-ken, Higashikamo-gun, Asuke-cho, Wachihara, fixed on IV. 1992, S. Niimi & H. Nakano leg.; 2 exs., same locality, fixed on V. 1991, Y. Arita & S. Niimi leg.; 2 exs., same locality, fixed on V. 1991, S. Niimi leg.

Reared from larvae on *Alnus serrulatoides*: Japan, Honshu—2 exs., Aichi-ken, Higashikamo-gun, Asuke-cho, Wachihara, fixed on IV. 1991, H. Nakano & S. Niimi leg.; 1 ex., same locality, fixed on VIII. 1991, H. Nakano leg.

Bionomics. Univoltine. The reddish brown elliptical egg is laid singly on the surface of

Figs. 1-8. *Synanthedon multitarus* Špatenka & Arita. 1. Freshly emerged male adult from *Alnus serrulatoides*; 2. Ditto, female adult from *Salix gracilistyla*; 3. Scarred bark with large quantities of sawdust-like frass expelled by larva, small trunk of *Salix gracilistyla*; 4. Ditto, small trunk of *Alnus serrulatoides*; 5. Ditto, branch of *Alnus serrulatoides*; 6. The mature larva in gallery of *Alnus serrulatoides*, exposed; 7. Pupae in cocoon made in larval gallery of *Salix gracilistyla*, exposed; 8. Extruded pupal case from small trunk of *Salix gracilistyla*.

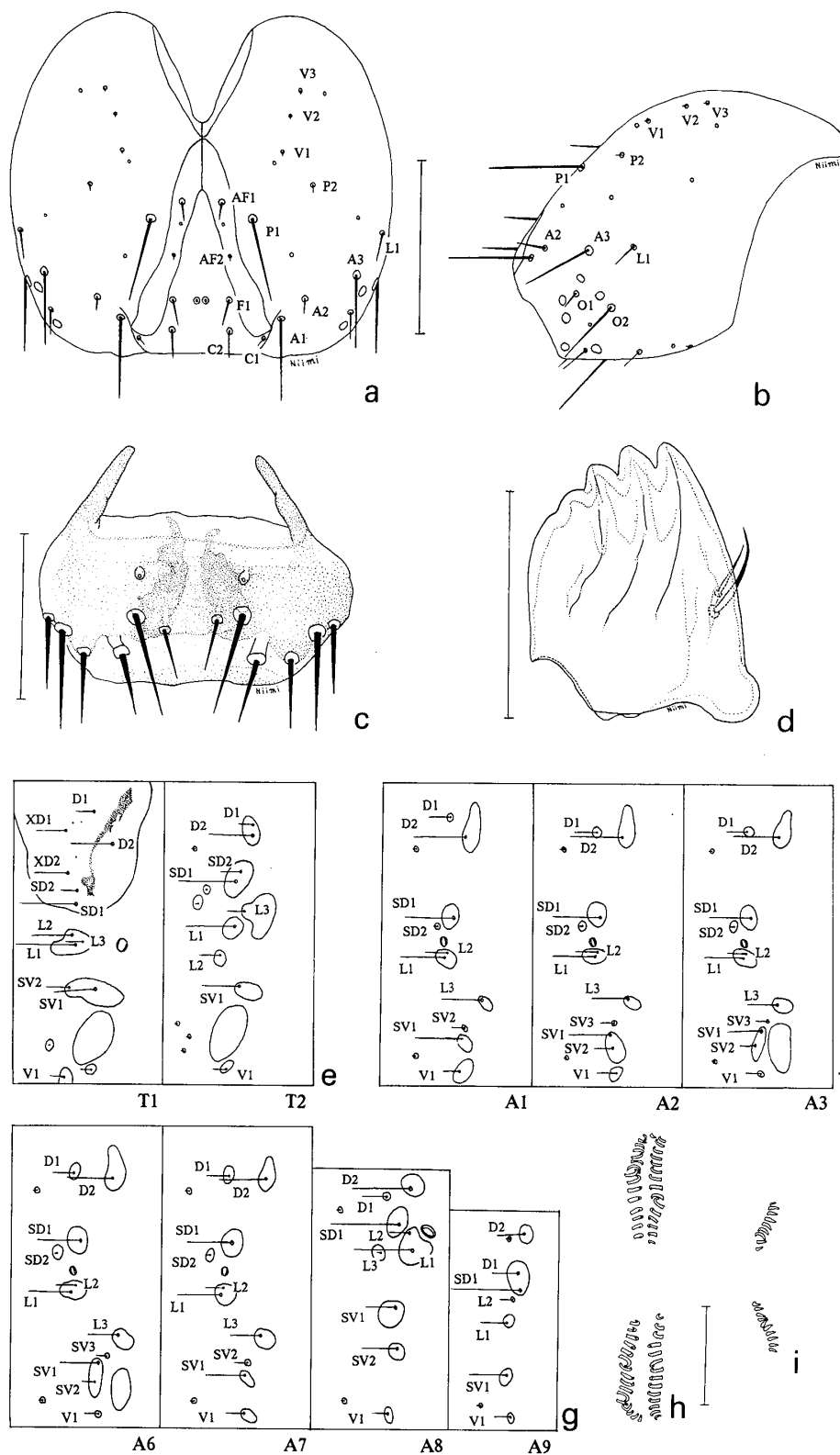
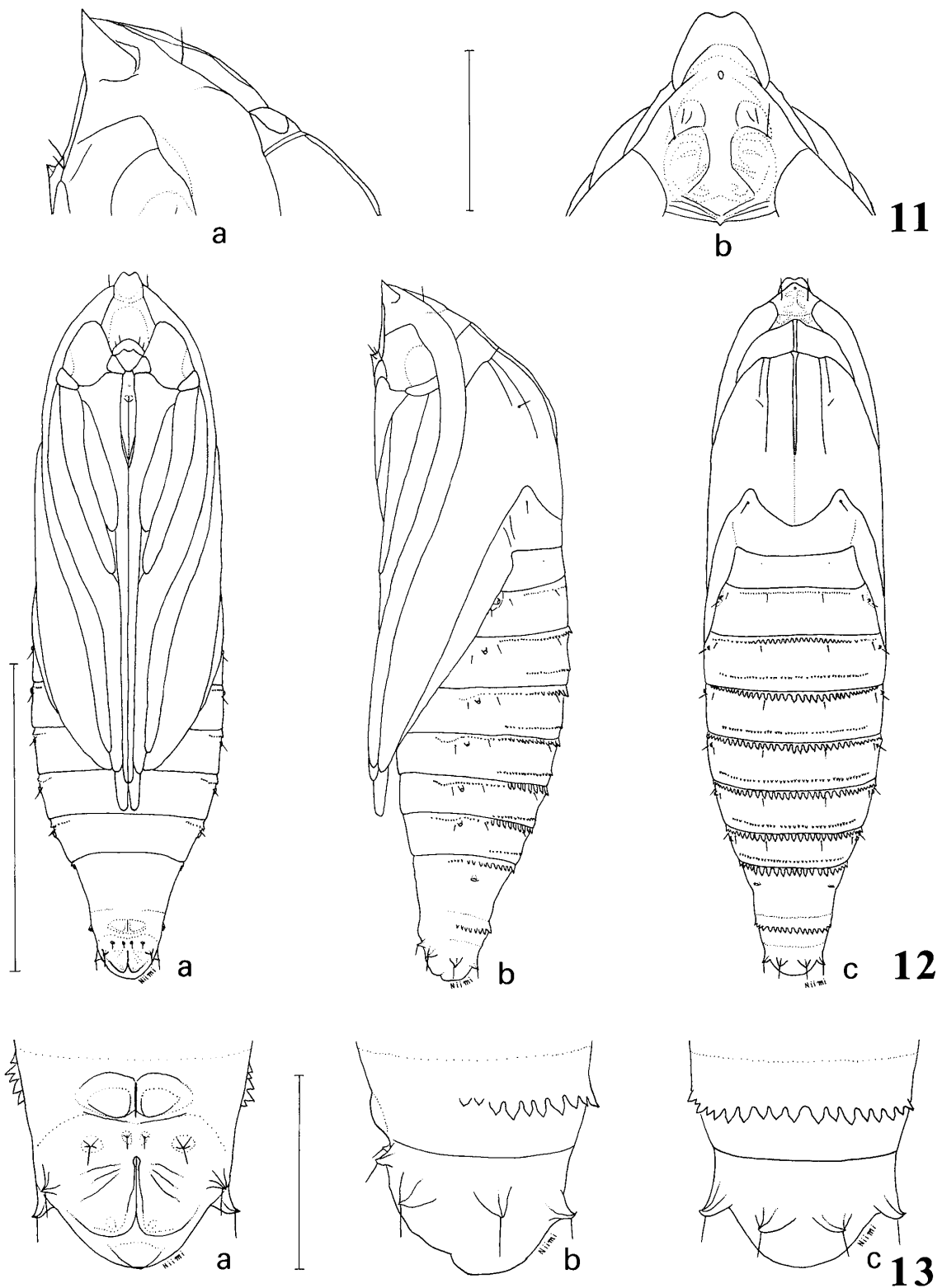


Fig. 10. *Synanthedon multatarsus* Špatenka & Arita ex *Salix gracilistyla*. a. Head, dorsal view; b. Oceller region, left side; c. Labrum, dorsal view; d. Mandible, ventral view; e. Pro- and mesothorax; f. First to 3rd abdominal segments; g. Sixth to 9th abdominal segments; h. Third abdominal proleg, ventral view; i. Anal proleg, ventral view. Scale line: a & b=1.0 mm; c=0.25 mm; d, h & i=0.5 mm.



Figs. 11-13. *Synanthedon multatarsus* Špatenka & Arita ex *Salix gracilistyla*, pupa, male. 11. Pupal frontal process (a: lateral view; b: dorsal view); 12. Total aspect (a: ventral view; b: lateral view; c: dorsal view); 13. Spines of tenth abdominal segments (a: ventral view; b: lateral view; c: dorsal view). Scale line: 11a-b=1.0 mm; 12a-c=5.0 mm; 13a-c=1.0 mm.

trunk of shrubby willow (*Salix gracilistyla*) and low-growing alder (*Alnus serrulatoides*). The larva makes a gallery below the bark (Fig. 6), and rarely tunnels in the stem of shrubby willow. The scarred bark has the large quantities of sawdust-like frass by the larva (Figs. 3-5). The full-grown larva hibernates and constructs a compact cocoon made by granular wood particles bound with silk in the larval gallery, and pupates within the cocoon in the end of May (Fig. 7). The pupal period is 12-16 days after making the cocoon. The moth emerges from the middle of June to the end of August from extruded pupa (Fig. 8).

Host-plants: *Salix gracilistyla* Miquel (Salicaceae) and *Alnus serrulatoides* Callier (Betulaceae).

Acknowledgement

We wish to express our sincere thanks to Dr. S. Moriuti of University of Osaka Prefecture for his critical reading of the manuscript.

Reference

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摘 要

ヒトスジスカシバ（スカシバガ科）の幼虫と蛹の記載（有田 豊・新美伸治・中野裕道）

著者らは本州でヤナギ類を加害する *Synanthedon* 属のスカシバガを探索していた所、著者の一人新美は愛知県足助町の矢作川ぞいの川原でネコヤナギ (*Salix gracilistyla* Miquel) の幹を加害し、樹皮より鋸屑状の糞をだしているスカシバガの幼虫を発見した (Fig. 3). また中野は同じ所でカワラハンノキ (*Alnus serrulatoides* Callier) の幹から同様に糞をだしているスカシバガの幼虫を見つけた (Figs. 4, 5). それらを飼育して成虫を羽化させた所、それらはいずれも同じ種類でヒトスジスカシバ *Synanthedon multitaris* Špatenka & Arita であった (Figs. 1, 2).

卵はネコヤナギやカワラハンノキの幹の裂け目、他の昆虫（コウモリガ類やカミキリムシ類）によって食害された所や切り株の切り口の樹皮に一卵ずつ7-8月に産み付けられる。幼虫はそれらの木の幹や枝の樹皮下に小さい部屋を作る (Fig. 6) がまれに幹の内部にまで食害することがある。そして終齢幼虫で越冬する。冬を越した幼虫はその幼虫の部屋で小さい木屑を糸でつづって繭を作り頭を上にして蛹化する (Fig. 7). 蛹期間は12~16日間であった。羽化時には非常に薄い皮にした樹皮の脱出孔より腹部の第6節位までを突出させて羽化する (Fig. 8).

幼虫 (Figs. 9-10) は14.3-16.8 mm と小さく、胸部第一節背楯に細長い褐色の斑紋があり、肛上板は黄褐色である。蛹 (Figs. 11-13) は8.4-11.0 mm と小さくやや細い。額突起はよく発達し、側面から見ると鋭く突出し、背面から見ると中央で凹んでいる。尾突起は背面に1対、側面に2対、腹面に2対(内1対は非常に小さい) がある。

(Accepted November 6, 1992)